IN THE CLAIMS

1. (Currently Amended) A composite sheet product comprising a scrim embedded in a continuous coating of a foamed resin, the composite sheet product being capable of conforming to a horizontal surface and having a thickness of from about 45 to about 150 mils.
2. (Original) The sheet product of claim 1 wherein the foamed resin is selected from a group consisting of foamed polyvinyl chloride and foamed polyurethane.
3. (Original) The sheet product of claim 1 wherein the scrim is woven.
4. (Original) The sheet product of claim 1 wherein the scrim is non-woven.
5. (Original) The sheet product of claim 1 wherein the scrim comprises at least one member selected from a group consisting of natural fibers, synthetic fibers and mineral fibers.
6. (Original) The sheet product of claim 1 wherein the foamed resin is a foamed polyvinyl chloride plastisol.
7. (Currently Amended) The sheet product of claim 1 having a thickness of from about [[45]] 55 to about [[55]] 100 mils.
8. (Original) The sheet product of claim 6 having a thickness of from about 55 to about 100 mils.
9. (Original) The sheet product of claim 1 wherein at least one side has been smoothed.

10. (Original) A combination of a horizontal surface and the composite sheet product of claim 1.

11. (Original) The sheet product of claim 2 wherein the scrim is woven.

12. (Original) The sheet product of claim 2 wherein the scrim is non-woven.

13. (Original) The sheet product of claim 2 wherein the foamed resin is a foamed polyvinyl chloride plastisol.

14. (Currently Amended) The sheet product of claim 2 having a thickness from about [[45]] 55 to about [[150]] 100 mils.

15. (Original) The composite sheet product of claim 1 wherein the scrim is formed from spun strands.

16. (Currently Amended) [[A]] The composite sheet product of claim 1 wherein the ~~foam~~ foamed resin comprises a foamed polyvinyl chloride plastisol[[,]] and the scrim comprises woven polyester ~~and the sheet product has a thickness of from about 45 mills to about 150 mills~~.

Please enter the new claims.

17. (New) An underlayment comprising the composite sheet product of claim 1.

18. (New) The composite sheet product of claim1 wherein at least one surface has non-slip properties.

19. (New) The composite sheet product of claim 1 wherein no adhesive is present on a bottom surface of the composite sheet product.

20. (New) The composite sheet product of claim 1 having a cushioning effect.

21. (New) The composite sheet product of claim 18 wherein top and bottom surfaces of the composite sheet product have non-slip properties.

22. (New) The composite sheet product of claim 1 having a top surface which is impervious to water.

DISCUSSION

Claim 7 has been amended and the limitations of claim 7 have been entered in claim 1.

The Official Action indicated that claims 1-15 are pending. Applicants respectfully submit that a new claim 16 was added with the response filed November 19, 2002. There were 16 claims pending.

Applicants have entered new claims 17-21 in the application.

The amendment to claim 1 is fully supported at page 9, lines 7, 8 and 15.

The limitation of claim 7 are supported in claim 8

The limitations of claim 17 are supported at page 1, line 6.

New claim 18 is supported at page 7, line 4 and page 10, line 9.

New claim 19 is supported at page 10, line 1.

New claim 20 is supported at page 3, line 2.

New claim 21 is supported at page 2, lines 10 and 11.

New claim 22 is supported at page 2, line 21.

Claim 1 has been amended to indicate that the composite sheet product is capable of conforming to a horizontal surface and has a thickness from about 45 to about 150 mils. Limitations of about 45 to about 150 mils were in original claim 7 which has been amended to comprise a more narrow thickness range.

Claim14 has been amended since the limitations to the thickness would be redundant in review of the amendment to claim 1.

Claim 16 has been amended since the limitations to the thickness were redundant in view of the amendment to claim 1.

The new claims 17-22 have been entered to claim sheet products having particular properties. Applicants respectfully submit that the claims as amended are neither taught nor suggested by the prior art references cited by the Examiner.

A detailed discussion of the composite sheet product was submitted with the October 20, 2003 response, the contents of which are incorporated herein by reference. The description will be relied upon in discussing the applied references.

Claims 1-5, 10-12 and 15 stand rejected under 35 USC 102(b) as anticipated by Willard et al. (US 3,385,751). Applicants respectfully submit that Willard et al. neither teaches nor suggests the present invention.

Applicants respectfully submit that the carpet backing construction disclosed in Willard et al. neither teaches nor suggests the present invention.

At column 2, lines 1 through 6, Willard et al. teach:

> "of pile elements extend out from one surface of the sheet and the foam is substantially compressed to a size essentially that of the thickness of the usual jute base sheet with the added advantage that the reinforced compressed foam structure gives as good or better hand than the usual jute. With this construction the tufted pile is maintained within the reinforced foam sheet by the complex compressive and frictional forces set up within the compressed foam sheet."

Applicants respectfully submit that Willard et al. neither teaches nor suggests a composite sheet product comprising a scrim embedded in a continuous coating of a foamed resin as defined in the present application.

Applicants respectfully submit that to be a compressible polyurethane foam as

disclosed in Willard et al., the foamed plastic must have an open cell structure. As is well understood in the art, an open cell structure provides openings or pores which extend from one surface of the foam to a second surface. The open cell foam is necessary to permit the various gases to escape when the plastic foam is compressed to a large extent. In addition, the final product of the Willard et al. process contains holes punched through the compressed foam plastic which provide additional passages which extend from one surface of the foam to the opposite surface. Applicants submit that the plastic foam sheet disclosed in Willard et al. does not meet the requirements of a scrim embedded in a continuous coating of a foamed resin as defined in the present application.

In addition, the foamed sheet disclosed in Willard et al. does not meet the requirement of a thickness of from 45 to 150 mils. Applicants submit that if the foamed plastic sheet disclosed in Willard et al. had an initial thickness of 150 mils, when substantially compressed to a thickness of about one quarter of the 150 mils, the sheet would have a thickness of about 40 mils which is outside of the range presently claimed. A thickness of about 40 mils is in the range of about 1/32 inches. A foamed structure this thin would not provide the sound absorbtion features disclosed in Willard et al. to be enhanced by the residual compression. Col. 5, lines 58-67.

At column 5, line 18-25, Willard et al. teaches:

> As the reinforcing member and foaming mixture is fed there between the foam is expanded in situ in the interstices between the reinforcing elements and expands to form a sheet 47 having a uniform relatively coarse pore structure throughout its thickness and having a uniform relatively fine-pore structure at each broad face thereof, which constitutes the skin effect mentioned above."

Applicants submit that the description at column 5, lines 18-25 clearly describes an open cell foam as set forth in the Encyclopedia of Polymer Science and Engineering; second edition, volume 3 at page 7. A copy of page 7 is enclosed.

As shown in the table at the top of page 7, flexible foamed polyurethane resins are all of the open cell type. The open cells are necessary to provide for the escape of the gases from the cell when the foam is substantially compressed.

Applicants herewith enclose page 33 from Encyclopedia of Polymer Science and Engineering, second edition, volume 3. At page 33, the paragraph beginning at the middle of the page teaches:

> "Flexible polyurethane foams are produced from long chain, lightly branched polyols and a diisocyanate, usually toluene diisocyanate (TDI), to form an opening-celled structure with free air flow during flexure."

The teachings of the Encyclopedia of Polymer Science and Engineering show that the flexible polyurethane foams have an open-cell structure which conforms to the teachings of Willard et al. Applicants therefore respectfully submit that a rejection under 35 USC 102(b) as anticipated by Willard et al. is untenable. Applicants respectfully request that the rejection be reconsidered and withdrawn.

Claim 1, 3, 5, and 9 stand rejected under 35 USC 102(b) as anticipated by Aine (US 4,078,293). Applicants respectfully submit that Aine neither teaches nor suggests the present invention.

Aine discloses a rigid plastic foam swimming pool cover. The swimming pool

cover is not flexible and does not meet the limitation that it would conform to a horizontal surface and in addition has a thickness far outside of the range of 45 to 150 mils. Applicants respectfully submit that Aine neither teaches nor suggests the present invention. Applicants therefore respectfully request that the rejection under 35 USC 102(b) over Aine be reconsidered and withdrawn.

Claims 1-3, 5-6, 9-11, 13 and 15 stand rejected under 35 USC 102(b) as being anticipated by Krumweide (US 4,083,324). Applicants respectfully submit that Krumweide neither teaches nor suggests the present invention.

Krumweide is directed to an apparatus for forming a layer of low-density foam of uniform thickness on a surface. The layer of low-density foam can have a scrim like material embedded in the foam. The coating of foam is bonded securely to the surface (column 5, lines 57-60).

Since the coating of the foamed resin is applied for insulation purposes, the coating is generally of a thickness to provide an efficient insulation between atmospheric temperature and a cryogenic fluid in a container. The example discloses a foamed layer about 1 inch thick. Applicants respectfully submit that Krumweide neither teaches nor suggests the present invention.

Firstly, Krumweide fails as a reference since it neither teaches nor suggests a composite sheet product. Krumweide discloses a foamed in place coating which is inherently bonded to the substrate to which it is applied. The coating relies upon bonding to the underlying substraste to provide its shape. The coating is not a

composite sheet as defined in the present invention.

To be an effective insulating material for cryogenic fluid, the foamed resin coating must be of a substantial thickness. The foamed resin coating in the example is about 1 inch thick (1000 mils).

The foamed insulating material of Krumweide do not meet the limitations to conformation to a horizontal surface. The foamed in place coating conforms to the shape of the underlying substrate but is bonded to the substrate and could not conform to another substrate. It is never present as a sheet material separate from the substrate.

In view of the fact that Krumweide does not disclose a composite sheet material, does not disclose a sheet material with a thickness of from 45 mils to 150 mils and does not disclose a material which is not bonded to the substrate, Applicants respectfully submit that Krumweide neither teaches nor suggests the present invention.

Applicants respectfully submit that the apparatus of Krumweide was developed to overcome the difficulties in applying uniform coatings of foamed materials to surfaces. Applicants therefore, respectfully submit that a rejection under 35 USC 102(b) or 35 USC 103(a) is untenable and respectfully request that the rejection over Krumweide be reconsidered and withdrawn.

Claims 1-6, 9-13 and 15 stand rejected under 35 U.S.C. 102(b) as anticipated by Park et al. (US 4, 828,908). Applicants respectfully submit that Park et al. neither teaches nor suggests the present invention.

The Examiner states:

> "The composite material used as the seating comprises a foamed plastics material having embedded therein a metal or non-metal matrix (column 3, lines 5-12)."

Applicants respectfully request that the Examiner reconsider his understanding the disclosure of Park et al. In the abstract, Park et al. teach:

> "The material comprises at least one layer of flexible metal or non-metal matrix material embedded within a compressed flexible foam material."

Applicants respectfully submit that the compressed foamed material in which the matrix material is embedded would neither teach nor suggest the present invention.

The vandal resistant seat disclosed in Park et al. is formed by embedding the matrix in a green, or uncured expanded foam material and subsequently compressing the foam plastic material to substantially remove gases therein and concurrently substantially curing the material (column 3, lines 55-61). As stated in the claims, the uncured foam material having embedded therein the matrix is compressed to substantially remove all of the gas produced during the foaming of the expandable flexible foam polymer material. Applicants submit that the vandal resistant material disclosed in Park et al. does not comprise a foamed material in that all of the gases have been removed from the structure. Applicants submit that when substantially all of the gases have been removed from the structure, there can be no bubbles of gases which remain in the structure. Applicants therefore respectfully submit that Park et al. does not teach nor suggest the structure of the present invention. That is, Park et al.

does not teach nor suggest a matrix embedded in a foamed resin which does not contain pores which extend from one surface to the other and in addition has as thickness of from about 45 to about 150 mils and in particular from about 55 to about 100 mils.

At column 6, lines 48-54 Park et al. teaches that the compressed foam is about ¼ inch or less thick as the thickness of the included metal and/or foam material dictates.

The preferred metal is a woven mesh of 20-gage stainless steel. 20 gage is about 0.035 inches which is 35 mils. Since the mesh is woven, the thickness of the mesh must be at least twice the thickness of the wire and generally substantially greater. That is, the thickness of the mesh would be at least 70 mils. The thickness of the mesh (70 mils) coupled with the thickness of the foam 0.25 inch would provide a structure with a thickness of at least 320 mils.

In view of the fact that the Park et al. structure is not a foam but is formed from compression of an uncured foam to remove substantially all of the gases, and the need for a thick layer of compressed foam to cover the substantial thickness of the mesh utilized to form the structure, applicants respectfully submit that Park et al. would neither teach nor suggest the foamed polymer composite sheet of the present invention.

In addition, the Park et al. structure is stated to be flexible but would not be conformable to a horizontal surface without substantial manipulation of the structure to

make it lie flat on a horizontal substrate. This would make the Park et al. composition not suitable for the shelf liner or underlayment requirements of the composite sheet product of the present invention.

If the Examiner believes that the Park et al. structure is a foamed plastic having embedded therein the matrix, Applicants respectfully submit that it would not meet the requirement that the matrix be embedded in a continuous coating of a foamed resin. Applicants submit that when pressure is applied to remove substantially all of the gases from the foamed polymer, if the foamed polymer was not already an open cell polymer, the cell walls would have to be ruptured to permit the gases to escape from within the cells. This would provide a structure with open pores which would provide pathways from one surface of the composite to the opposite surface. Applicants therefore respectfully submit that Park et al. would neither teach nor suggest the composite sheet structure of the present invention. Applicants respectfully request that the rejection be reconsidered and withdrawn.

Claims 8 and 14 stand rejected under 35 USC 103(a) as unpatentable over Park et al. Applicants respectfully submit that Park et al. neither teaches nor suggests the present invention.

As discussed above, Park et al. does not disclose a matrix embedded in a foamed plastic. As disclosed in Park et al., substantially all of the gases are compressed from the foam before the composite is cured. Without having any gases within the structure, the structure cannot be a foamed plastic. In addition, if there are

any cells in the sheet structure of Park et al. after the compression, the cells would be open cells and provide passages from one surface of the composite sheet to the other. Applicants therefore respectfully submit that Park et al. would neither teach nor suggest the present invention.

Applicants submit that the composite sheet product of the present invention differs from the composite sheet product disclosed in Park et al. in that the composite sheet product of the present invention comprises a matrix embedded in a continuous coating of a foamed resin. The terms embedded in the continuous coating of a foamed resin clearly teach that there are no openings which extend from one surface of the composite sheet product to the other. Applicants submit that Park et al. is not a foamed plastic surrounding the matrix since all of the gases have been removed from the polymer. However, if there should be some gases present, they would be in an open cell structure which open cell material would have passages which extend from one surface of the structure to the other. This would be necessary to provide pathways for removing the gases from the interior of the structure during the compression.

Applicants respectfully submit that the structure of the uncured foam surrounding the matrix does not meet the requirements of the structure of the present invention. The uncured foam surrounding the matrix would not be useful in the present invention or the Park et al. process except for further compression and curing to remove substantially all of the gases from the polymer. Applicants therefore respectfully submit that the uncured foamed polymer having embedded therein the matrix is not equivalent

and would neither teach nor suggest the composite of the present invention. Applicants therefore respectfully request that the rejection under 35 USC 102 or 35 USC 103 over Park et al. be reconsidered and withdrawn.

Claims 1-5, 7-8, 10-12 and 14 stand rejected under 35 USC 102(b) as anticipated by Bries et al. (US 5,110,843). Applicants respectfully submit that Bries et al. neither teaches nor suggests the present invention.

As presently claimed, the present invention comprises a scrim embedded in a continuous coating of foamed resin. As defined in the specification, the term "embedded" means that the scrim is covered on both sides with the foamed resin and the term "a continuous coating of a foamed resin" is defined as a coating which does not have passage ways which extend from one surface of the composite sheet to the opposite surface. Applicants respectfully submit that the Bries et al. structure does not teach or suggest the present invention.

The Bries et al. absorbent, non-skid foam requires that the foam contain vesicles and passageways which extend from one surface of the foam to the other. This is required to provide the absorbent properties required by the structure. The resin coating cannot be continuous since it would prevent absorbsion of water into the interior of the structure. Applicants therefore respectfully submit that Bries et al. neither teaches nor suggests the present invention. In fact, Bries et al. would teach one skilled in the art away from the composite sheet product of the present invention comprising a scrim embedded in a continuous coating of a foamed resin.

In the Official Action, the Examiner attempts to determine the dimensions of the Bries et al. product. Applicants have also attempted to do a similar calculation but are unable to determine the thickness of the AIR TEXT substrate material. Not knowing the thickness of the substrate, Applicants find it impossible to determine the thickness of the Bries et al. composite sheet having the smallest amount of foam resin applied thereto. Applicants therefore respectfully submit that it is not possible to determine the thickness of the composite sheet of Bries et al. using the information provided in the reference.

Even if the thickness of the Bries et al. composite sheet fell within the range of about 45 to about 150 mils, the composite sheet of Bries et al. would neither teach nor suggest the present invention. It is clear from the Bries et al. disclosure that the composite sheet of Bries et al. has properties which are completely opposite to the properties of the composite sheet of the present invention. The Bries set al. composite sheet is an absorbent sheet which requires that the sheet contain passages which extend from one surface to the other. The Bries et al. composite sheet would not be useful as the underlayment of the present invention since it would provide passages for moisture and debris to pass from one surface of the sheet to the underlying substrate, which would make it less suitable for the application of the structure of the present invention. Applicants therefore respectfully submit that a rejection over Bries set al. is untenable and respectfully request that the rejection be reconsidered and withdrawn.

Applicants have reviewed Moran (US 5, 295,883) and Kraft (US 4,533,588) and

do not believe that they teach or suggest the invention as presently claimed. The disclosure of the two references appear to have various deficiencies in regard to thickness, porosity and the like. Applicants therefore respectfully submit that these references are not pertinent to the present invention.

The Examiner brings to Applicant's attention the underlayment line of products of CONTACT brand a subsidiary of Appliance Solution Corporation. Applicants have not been able to obtain any information concerning when the products were first brought to market.

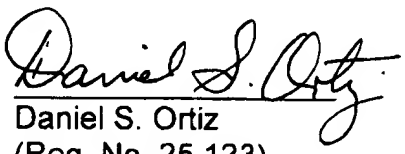
Applicants are aware of two additional products which applicants believe would infringe the claims of a patent which would issue on the subject application. Applicants herewith submit the covers for an AUTO MATE ACCESSORY GRIPPER and TRUCK BOX LINER. Applicants are not certain when these products came on to the market, but they did not come to the attention of Applicant's representatives until early in the first quarter to the second quarter of 2003.

Applicant's invention was first distributed to the general public about the middle of July 2001. The product has been very successful. It is not unreasonable to assume that other parties distributing like products could have copied Applicant's material since a patent has not issued on the product. Applicants herewith include copies of the Duck Solid Easy Liner which is the product of the Assignee of the present application. The particular cover which accompanies the product has a copyright of 2002. Applicants invite the Examiner's attention to the reverse side of the product wrapper which

suggests various uses for the composite sheet product.

In view of the amendments entered in the claims and the above discussion, Applicants respectfully submit that the application is in condition for allowance and favorable consideration is requested.

Respectfully submitted,



Daniel S. Ortiz
(Reg. No. 25,123)
Attorney For Applicant
(610) 278-4934

Henkel Corporation
Law Department
2200 Renaissance Blvd.
Gulph Mills, PA 91406